Space Grant Student-Mentor Programs

Establishing and Maintaining a World-class Workforce Through Community Based Alliances

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Introduction

• Maintaining U.S. Competitiveness

"Faced with a shortage of highly skilled workers in the U.S., many of our nation's businesses, including those in the high tech industry, must increasingly rely on the INS to help provide them with access to highly skilled foreign professionals." Congressional Record Senate, Oct 3rd, 2000, Senator Feinstein

Sustain World leadership in Science and Technology, Boost Overall Workforce Skills, Strengthen Regional Clusters of Innovation U.S. Competitiveness 2001, Council on Competitiveness

•Achieving California's Workforce Goals

WHEREAS, the successful development and implementation of California's workforce investment system will require the participation of representatives from business, labor, public education, higher education, economic development, youth activities, employment training, as well as the Legislature….. Executive Order D-9-99, Governor Gray Davis

• Community Based Alliance Model

Establishing and maintaining a world-class workforce requires community-based alliances between industry, government and educational institutions (K-12, higher education, and continuing education) where resources and infrastructure are developed and shared. Dr. Michael Wiskerchen, Director California Space Grant Consortium

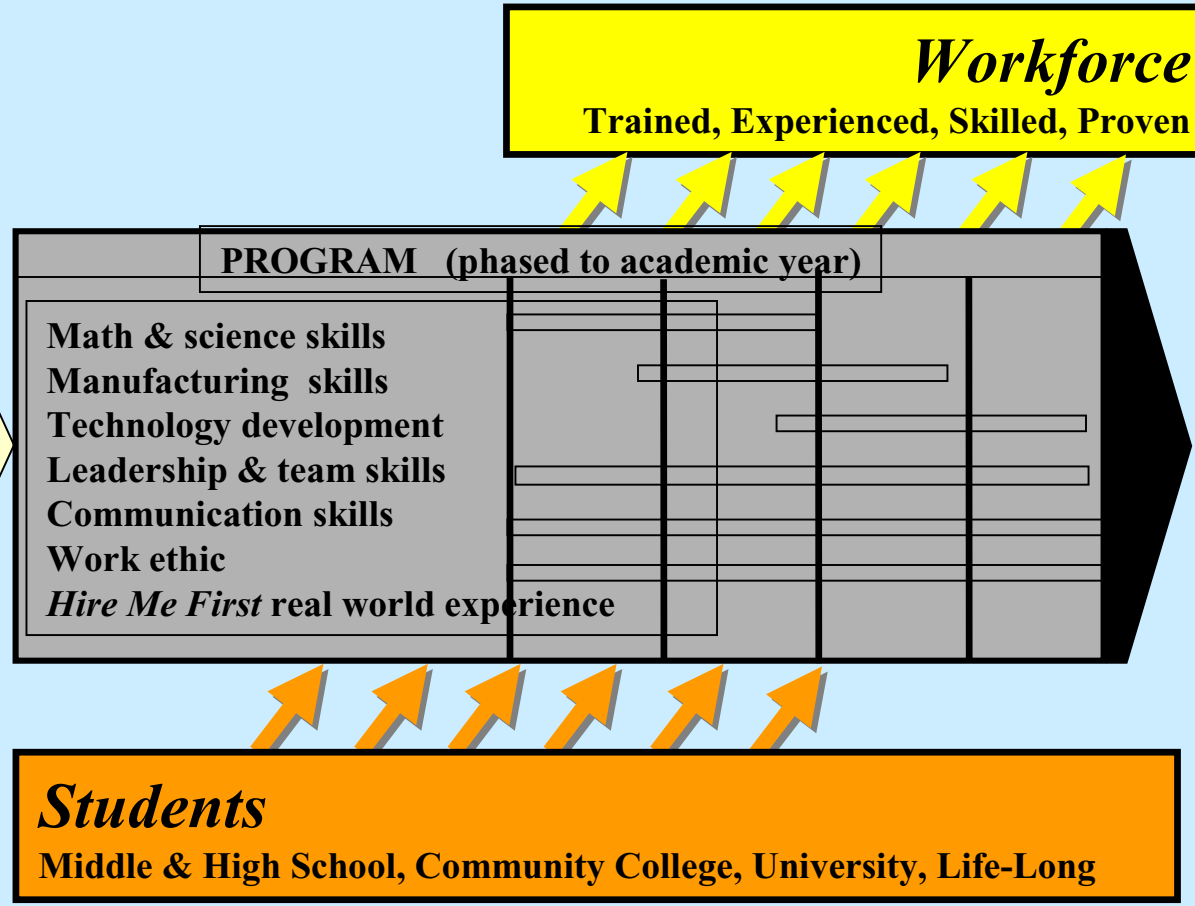
Student - Mentor Alliance Model Utilizes Space Grant Team's Core Competencies

Alliance

Assets
Expertise
Teams

Mentors
- Professors
- Paid Professionals
- Government Personnel
- Retired Persons

Guidance
- Local Economic Groups
- Workforce Groups
- Placement Specialists
- State & Federal Policy Makers
- Military Commands
- Commercial Companies



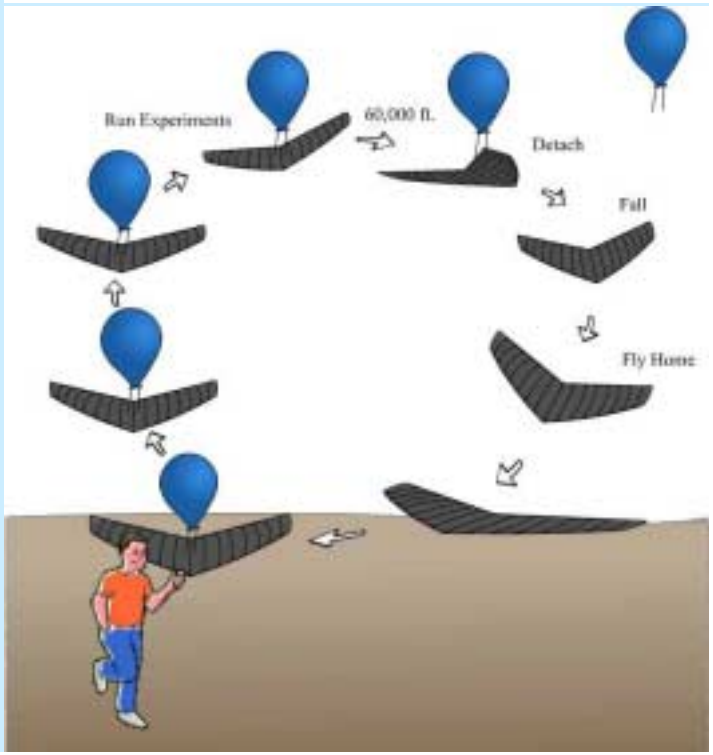
CALIFORNIA SPACE GRANT

• UC Berkeley • UC Davis • UC Irvine • UC Santa Cruz • UC Los Angeles •UC San Diego • UC Santa Barbara
• Caltech • UC Santa Cruz • CSU Long Beach • CSU San Diego • UC Riverside • CSU San Jose • Palomar College
• Pomona College • Astro. Society of Pacific • S. F. Art Institute • Santa Clara Univ. • Southwestern College
• Univ. So. Cal • Stanford University • CalPoly-SLO • Univ. of San Diego • CalPoly Pomona

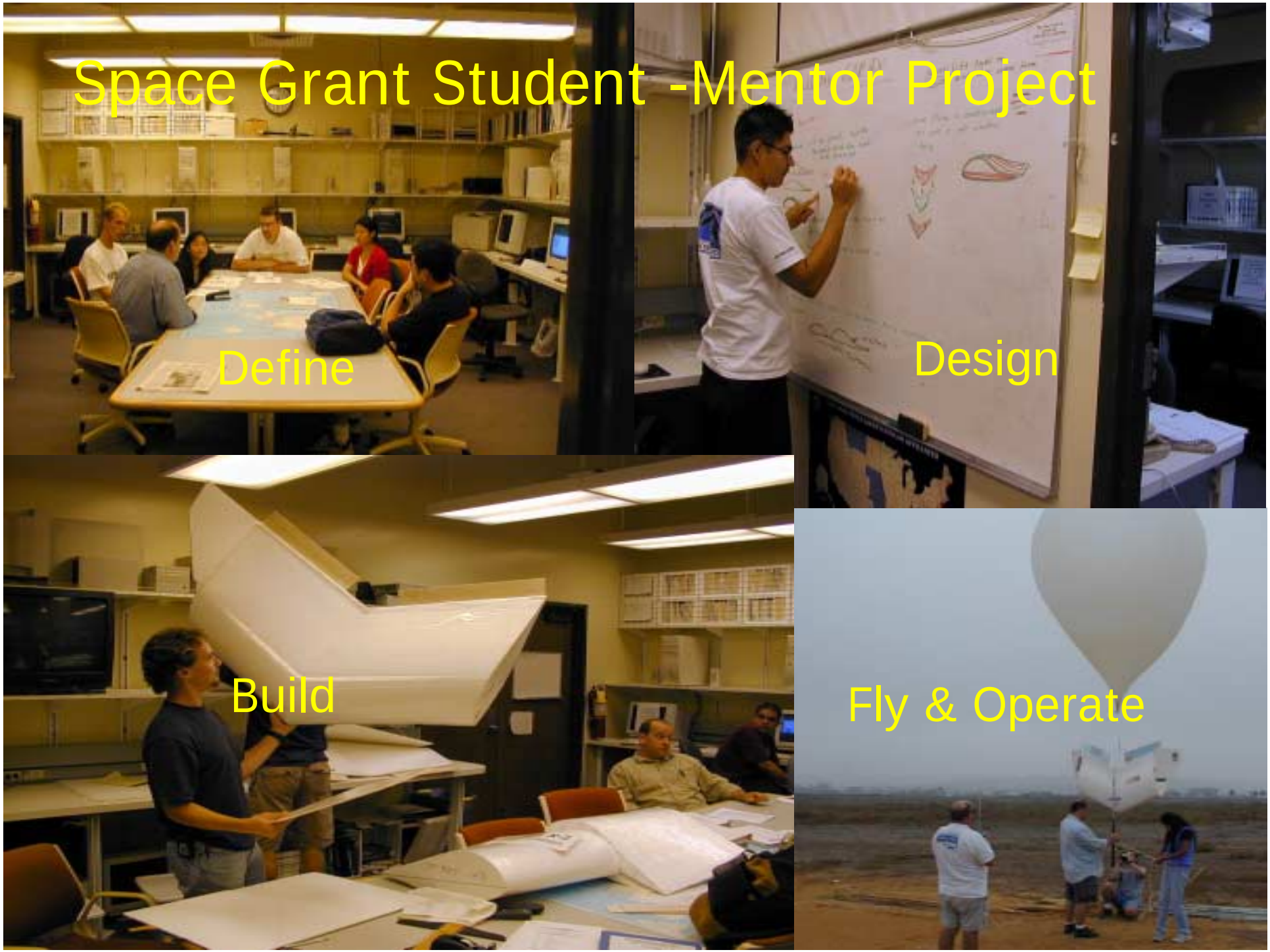
CORAX Project

***C*ontinuous *O*bservation & *R*emote Sensing *A*UAV e*X*periment**

Cost-Effective
UAV
Delivery System
for MEMS and
Nanotechnology Payloads

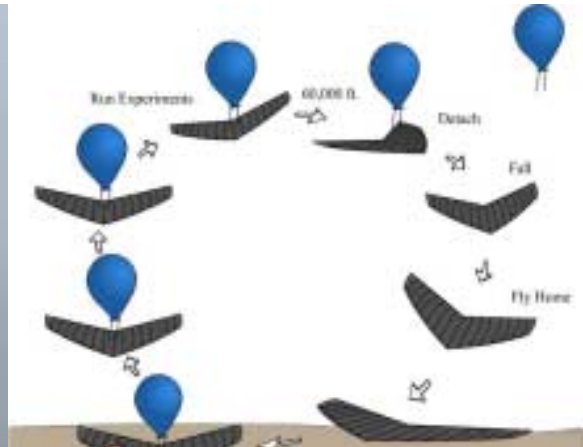


Space Grant Student -Mentor Project



Technical Aspects

- Off the shelf technology
- Safe and reliable launch and autonomous recovery system for MEMS devices
- Extended loiter time with thin film solar panel technology
- Cost and re-flight times are very small
- The estimated cost per unit, complete with avionics is $2500 to $4500
- The estimated cost per flight is less than $50
- Unique light weight design and size (4 lbs. (1.81 kg) including payload)
- Minimal Electromagnetic Signature and quiet operation

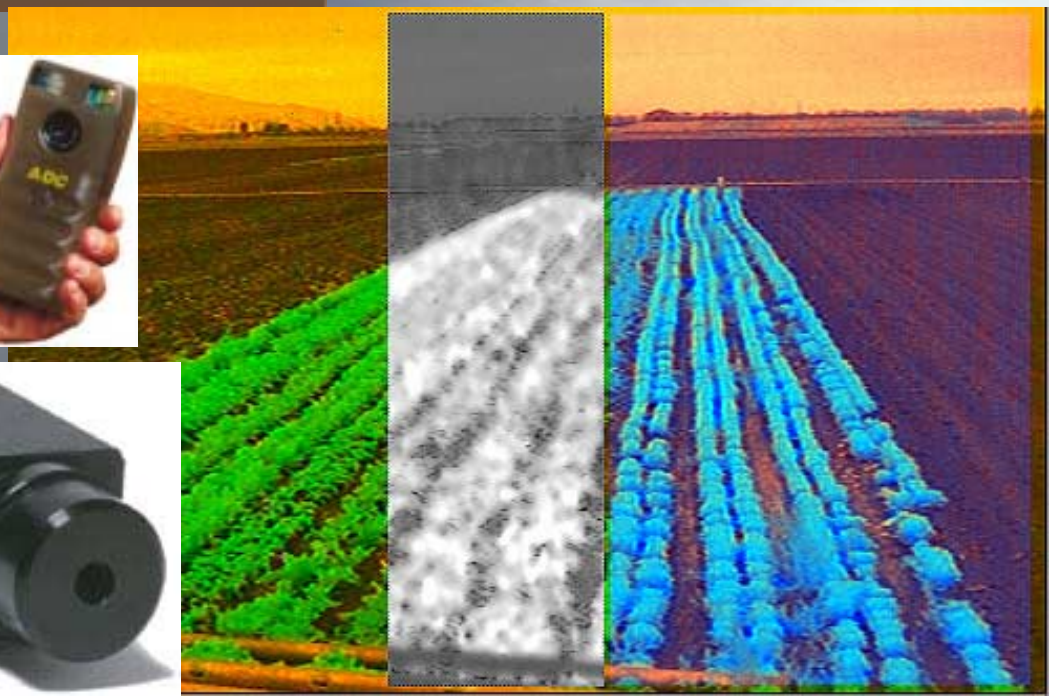


Critical Need

- Precision Agriculture;
- Environmental and Natural Hazards Monitoring;
- Military Applications
- Homeland Security.

Applications

- University-based environmental, agricultural, and natural hazards remote sensing applications
- Military applications requiring continuous low cost detection, forward spotting, and tactical assessment
- Dynamically configurable low-cost networks of communication and sensor arrays using cooperative technologies and standard networking protocols



California 2002 Program Overview

Train students in all aspects of designing, building and launching two remote sensing satellites including satellite instruments and flight operations. Post launch generate a statewide remote sensing image data base & distribute data products.

• Phased Program

- **Phase 1 - Demonstration Projects and Planning**
  - **Tracy-San Diego IEP & Hire Me First**
  - **Tracy-San Diego Science Academy**
  - **California 2002 Implementation Plan**
- **Phase 2 - Statewide implementation**
- **Phase 3 - Operations and statewide benefits**

• Benefits

- **Form Student-mentor teams throughout the state reach into middle schools, high schools, universities and life-long learning.**
- **Form teams to balance practical and theoretical skills**
- **Provide for California science, research, commercial, and educational public/private institutions in Hydrology, Environment, Agriculture, Urban Planning and Emergency Response**
- **Prepare students for vocational and professional jobs in Network management, software and hardware, Database management, Precision Farming, Electronics, Science, Government Policy, Communications, Program management and Business.**
- **Incorporate California teacher and outreach programs (UC, CSU, CCC, Private)**

California 2002 Initial Phase 1 Team

- California Space Grant Consortium (National Space Grant Foundation)
- California Employment Development Department (EDD)
- California Space Institute (University of California)
- San Diego Center for Applied Competitive Technologies (CACT-California Community College System)
- Tracy Industry Education Partnership
- Merced County Workforce Investment Board
- Discovery Charter School

Space Grant Student Satellite Initiative

"Proposed Action Plan"

- **Create Baseline Funding as NASA Program**
  - Annual line item budget - $25M (examples: Discovery, UNEX, etc.)
  - Annual Announcement of Opportunity (AO) process & Peer Review
  - Evaluation & Selection Criteria
    - Addresses "Human Capital" issues for NASA and Nation
    - Quality of proposed program (in terms of workforce development, technical and science aspects, and management)
    - Quality and composition of team
      - › University, Industry, State and Federal Government (NASA Centers, DoD, DoA, DoE, etc.)
      - › State & Federal workforce development organizations
    - Cost sharing with workforce development agencies (State & Federal) and industry